

Remarks

Reconsideration and reversal of the rejections expressed in the Office Action of April 27, 2006 are respectfully contended in view of the following remarks and the application as amended. The present invention relates to a method for reducing the amount of particles and residues in photomasks.

Claims 1, 3-4, 7-8, 10-11 and 14-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nagamura et al. (U.S. Patent No. 6,071,376, or “the ‘376 patent.”). The Office Action states that relative to these claims, the reference does not teach the ratio and the number of cleaning cycles as claimed.

The ‘376 patent relates to a method and apparatus for cleaning a photomask which removes residual agents (mainly sulfuric acid) from the surface of a photomask after a cleaning step, improving the quality of photomask. Applicant respectfully contends that there is no teaching or suggestion in the reference that the number of multiple cleaning cycles exercised on a particular photomask without degradation could be greater than about ten cleaning cycles. The independent claims have been previously clarified to include the specific pH range of the solution which contacts the photomask. Support for such clarifications are found in the present specification at page 7, paragraph 4.

It is worthy of note that the pH scale is logarithmic, and as a result, each whole pH value above 7 is ten times more alkaline than the next lower value. In this case, the disclosed pH value of 10 in the ‘376 patent is at least five times more alkaline than the upper pH value of the range disclosed and presently claimed (greater than 8 and less than 9.5). Note that all examples in the ‘376 patent specify a pH of 10; there is no teaching or suggestion that Applicant’s disclosed and presently claimed pH range would be effective. Indeed, based on the teachings of the ‘376 patent, it is not at all apparent that the lower pH values as presently claimed would provide a successful outcome.

In addition, the claims have been further clarified by this Amendment and Response, to note that the removing of particles and residue is assisted by etching of the metal underneath said particles and residue; support for such clarifications is found at page 8, paragraph 2 of Applicant's specification. Such an aspect is neither disclosed nor contemplated in the '376 patent; interestingly, the reference notes the use of an etching stopper (at column 2, lines 61-62), which would appear to further teach away from the present invention as disclosed and presently claimed. Thus, prima facie obviousness is not established.

For all of the above reasons, it is respectfully contended that the solicited claims define patentable subject matter. Reconsideration and reversal of the rejections expressed in the Office Action of April 27, 2006 are respectfully submitted. The Examiner is invited to call the undersigned if any questions arise during the course of reconsideration of this matter.

Respectfully submitted,

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